XIV

R&D-5-1

JOINT MESSAGEFORM

SECURITY CLASSIFICATION [redacted] [redacted]

SPACE BELOW RESERVED FOR COMMUNICATION CENTER

File Vet 1106

1961 APR ~~1098~~ 02 48

1961 APR 9 02 48/~~1099~~

PRECEDENCE	TYPE MSG (Check)			ACCOUNTING SYMBOL	ORIG. OR REFERS TO	CLASSIFICATION OF REFERENCE
ACTION OPS IMMEDIATE	BOOK	MULTI	SINGLE			
INFO		X				

FROM: 6565TESTWG VANDENBERG AFB CALIF

TO: AF SPACE SYSTEMS DIVISION LOS ANGELES CALIF

6594TESTWG /SATELLITE/ SUNNYVALE CALIF

LOCKHEED MISSILES & SPACE DIVISION SUNNYVALE CALIF

LOCKHEED MISSILES & SPACE DIVISION VANDENBERG AFB CALIF /COURIER/ ZEN

DOUGLAS AIRCRAFT COMPANY VANDENBERG AFB CALIF /COURIER/ ZEN

INFO: 1 MISSILE DIV VANDENBERG AFB CALIF /COURIER/ ZEN

6565TESTWG VANDENBERG AFB CALIF /COURIER/ ZEN

6555TESTWG PATRICK AFB FLORIDA

SPECIAL INSTRUCTIONS

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CLASSIFICATION CHANGED TO [redacted]

06 APR 1959

~~SECRET~~ FROM VWZD-8-4-4-S.

LOSA FOR WDZY SEMCLN 6594 TW FOR COL MOORE SEMCLN LMSD/SUNNYVALE FOR DEPT 61-44 /V. W. MARSH/ SEMCLN LMSD/VAFB FOR DEPT 65-44 SEMCLN DAC/VAFB FOR MR. HECKMAN. INFO CLN 1MD FOR COMMAND POST AND DOOPS

DATE	TIME
8	1740
MONTH	YEAR
APR	1961

WRITER

SYMBOL VWZD Charles S. Waller

TYPED NAME AND TITLE (Signature, if required) Major Charles S. Waller

PHONE 8-6734 PAGE NR. 1 NR. OF PAGES 7

SECURITY CLASSIFICATION [redacted] [redacted]

RELEASER

SIGNATURE Charles S. Waller Maj

TYPED (or stamped) NAME AND TITLE LUCIUS A. PERRY, JR., Col, USAF
Deputy Commander for Space Systems

Cy #1 of 7 copies

DD FORM 1 MAY 173 REPLACES DD FORM 173, 1 OCT 49, WHICH WILL BE USED UNTIL EXHAUSTED

JOINT MESSAGEFORM - CONTIN [redacted]

FROM:
6565TESTWG [redacted]

SEMCLN 6565 TW FOR VWZE /MR. PISCHEL/ SEMCLN 6555

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TEST WG FOR COL WIGNALL. SUBJECT CLN FLASH REPORT ON LAUNCHING OF DISCOVERER XXIII /NIGHT-SHIFT PRESTO/.

1. DISCOVERER XXIII COMPRISED OF THOR BOOSTER NO. 307 AND AGENA B ORBITAL STAGE NO. 1106 WAS LAUNCHED FROM SM-75-3, PAD 5, AT 1121:8.5 PST ON 8 APRIL 1961. THE PRIMARY LAUNCH OBJECTIVE, TO PLACE THE DISCOVERER SATELLITE WITH PAYLOAD INTO NEAR-POLAR ORBIT WAS ACCOMPLISHED, AND THE TRACKING STATIONS AT KODIAK, VAFB, AND HAWAII HAVE RECEIVED THE RADAR BEACON AND TELEMETRY SIGNALS ON THE FIRST ORBIT PASS.

2. A PRELIMINARY EVALUATION OF LAUNCH TEST OBJECTIVE ACHIEVEMENT IS AS FOLLOWS. /REFERENCE DETAILED TEST OBJECTIVES, LMSD 446404, SECTION 2/.

A. DISCOVERER BOOSTER - OBJECTIVE ACHIEVED.

AT BOOSTER ENGINE BURNOUT, THE VEHICLE POSITION, FLIGHT PATH ANGLE, AND VELOCITY WERE WITHIN THE ESTABLISHED TOLERANCES OF 5 NAUTICAL MILES, 4 DEGREES, AND -500 FPS FROM THE NOMINAL VALUES, RESPECTIVELY. OPERATION OF THE BTL GUIDANCE SYSTEM IN PROVIDING THOR STEERING AND EVENT COMMANDS AND

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VEHICLE RESPONSE TO THESE COMMANDS APPEAR TO HAVE BEEN SATISFACTORY. MECO OCCURRED AT T+149.6 SECONDS AND EVENT TIME CORRELATION INDICATES THAT THE CUT-OFF WAS COMMANDED BY BTL GUIDANCE. VECO OCCURRED AT T+158.7 SECONDS. SEPARATION OF THE ORBITAL STAGE FROM THE BOOSTER STARTED AT T+165.7 SECONDS AND THIS EVENT ALSO APPEARS TO HAVE BEEN INITIATED BY BTL GUIDANCE COMMAND. 20 CPS OSCILLATIONS WERE NOTED IN THOR PROPELLANT PUMP INLET PRESSURES AND THE THOR AND AGENA ACCELEROMETER DATA BETWEEN T+138 SECONDS AND T+148 SECONDS.

B. AGENA AIRFRAME AND ADAPTER - OBJECTIVE ACHIEVED.

NO EVIDENCE OF STRUCTURAL PROBLEMS IN THE AGENA AIRFRAME OR ADAPTER HAS BEEN NOTED.

C. AGENA PROPULSION SYSTEM - OBJECTIVE ACHIEVED.

THE THRUST NECESSARY TO EFFECT SEPARATION WAS PROVIDED BY THE RETRO-ROCKETS. OPERATION OF THE AGENA ENGINE WAS SATISFACTORILY INITIATED AT T+220.5 SECONDS AND THE OPERATING DURATION WAS 242.4 SECONDS. THE SENSIBLE VELOCITY GAIN DURING THE ORBITAL STAGE BOOST AS DETERMINED FROM INTEGRATOR DATA WAS

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17,023 FPS. AGENA ENGINE SHUTDOWN WAS COMMANDED BY THE INTEGRATOR AT T+462.9 SECONDS. THE IMPULSE PROVIDED BY THE AGENA ENGINE WAS SUFFICIENT TO GIVE THE VEHICLE ORBITAL VELOCITY AT THE INJECTION ALTITUDE.

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D. AGENA ELECTRICAL POWER SYSTEM - OBJECTIVE ACHIEVED.

NO EVIDENCE OF ELECTRICAL POWER SYSTEM PROBLEMS HAS BEEN NOTED.

E. AGENA GUIDANCE AND FLIGHT CONTROL SYSTEM - OBJECTIVE ACHIEVED.

THE AGENA GUIDANCE SYSTEM PROPERLY RESPONDED TO A 7.64 SECOND TIME-TO-FIRE CORRECTION AND A 3.0 SECOND VELOCITY-TO-BE-GAINED CORRECTION AS COMMANDED BY THE BTL GUIDANCE SYSTEM. VEHICLE ATTITUDE WAS SATISFACTORILY CONTROLLED DURING THE COAST PHASE AND THE ORBITAL BOOST PHASE, AND CONTROL GAS EXPENDITURE WAS NORMAL. THE TIME AND SEQUENCE OF ALL PROGRAMMED EVENTS THROUGH THE START OF VEHICLE REORIENTATION AFTER INJECTION WERE PROPERLY CONTROLLED BY THE SYSTEM TIMER.

F. AGENA SPACE COMMUNICATIONS SYSTEM - OBJEC-

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TIVE ACHIEVED.

ACQUISITION BEACON OPERATION WAS SATISFACTORY AND ITS SIGNAL WAS TRACKED FROM LIFT-OFF TO T+566 SECONDS BY THE VAFB AND PT MUGU TRACKING STATIONS. THE RADAR BEACON WAS TRACKED SATISFACTORILY FROM LIFT-OFF TO T+576 SECONDS BY THE VAFB AND PT MUGU VERLORT RADARS.

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G. GROUND SUPPORT EQUIPMENT - OBJECTIVE ACHIEVED.

BOOSTER AND ORBITAL STAGE CHECKOUT WAS SATISFACTORILY ACCOMPLISHED DURING THE COUNTDOWN BY THE GROUND SUPPORT EQUIPMENT. PROBLEMS WITH THE UMBILICAL MAST SUPPORT SADDLE, THE AGENA AIR CONDITIONING DUCT, AND THE THOR GASES SUPPLY PRESSURE SWITCH WERE SATISFACTORILY RESOLVED DURING THE COUNTDOWN.

H. DISCOVERER SYSTEM FACILITIES - OBJECTIVE PARTIALLY ACHIEVED.

STATION COMMUNICATIONS WERE ADEQUATE. "HOT LINE" COMMUNICATIONS WERE LOST FOR A SHORT PERIOD DURING TERMINAL COUNTDOWN, BUT WERE RE-

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GAINED BEFORE LAUNCH. THE AGENA TELEMETRY SIGNAL WAS RECEIVED AND RECORDED BY THE VAFB TRACKING STATION FROM LIFT-OFF TO T+566 SECONDS, AND GOOD FLIGHT DATA RECORDS HAVE BEEN PRODUCED. THE PT MUGU TRACKING STATION RECEIVED THE AGENA TELEMETRY SIGNAL FROM T+23 SECONDS TO T+566 SECONDS. THE PLOTBOARD PRESENTATIONS OF THE VERLORT RADAR TRACKING DATA AT VTS WERE ERRATIC APPARENTLY BECAUSE OF NOISY DATA TRANSMISSION LINES. THIS CONDITION PREVENTED THE DETERMINATION OF ORBITAL INJECTION VELOCITY FROM THE PLOTS. A PROBLEM WITH THE DIGITAL TRACKING DATA HAS ALSO BEEN REPORTED.

3. PRE-LAUNCH COUNTDOWN.

THREE HOLDS WITH A TOTAL DURATION OF 21 MINUTES WERE INCURRED DURING THE COUNTDOWN. HOLD NO. 1 WAS IMPOSED AT T-15 MINUTES TO AWAIT PASSAGE OF TRAINS THROUGH THE RANGE HAZARD AREA. DURATION OF THE HOLD WAS 10 MINUTES. HOLD NO. 2 WAS CALLED AT THE START OF PHASE 2 OF THE TERMINAL COUNTDOWN BECAUSE OF LACK OF AN INDICATION OF PROPER THOR GAS SUPPLY PRESSURE. CORRECT PRESSURE WAS CONFIRMED

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AND THE COUNT RESUMED AFTER A 7 MINUTE HOLD. HOLD NO. 3 WAS IMPOSED DURING PHASE 5 OF THE TERMINAL COUNTDOWN BECAUSE OF LOSS OF THE "HOT LINE" COMMUNICATIONS LINK AND BECAUSE OF A PROBLEM IN THE VAFB VERLORT RADAR. DURING THE HOLD WHICH LASTED 4 MINUTES THE THOR LOX SUPPLY WAS TOPPED OFF.

4. PAD DAMAGE.

DAMAGE TO EQUIPMENT ON PAD 5 WAS LIGHT.

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